gene and genotyping was undertaken via using TaqMan SNP genotyping assay.

RESULTS In total and male Han population, the distribution of rs2108552 genotypes has showed a significant difference between CAD patients and control subjects (P=0.013 and P=0.003). In Addition, the dominant model and alleles of rs2108552 has also showed a significant difference between CAD patients (P=0.004 and P=0.007) and control subjects (P=0.001 and P=0.003). C allele of rs2108552 is remarkably high among CAD patients (total: 53.55%, male: 53.90%) when compared to control subjects (total: 46.70%, male: 44.05%). The above difference remained significant after multivariate adjustment (total: OR: 0.687, P=0.004; male: OR: 0.498, P=0.006).

CONCLUSIONS Among male Han population, CC genotype of rs2108552 in Numb gene might be a protective genetic marker and G allele might be a risk genetic marker for CAD.

GW26-e2155

Best Predictor of Metabolic Syndrome: Comparison of Various Anthropometric and Atherogenic Parameters in the Kazakh Population in Xinjiang Province

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OBJECTIVES Few studies have investigated the metabolic syndrome (MetS) in the Kazakh population in China. This study aimed to evaluate the best single predictor of the MetS by comparing various anthropometric and atherogenic parameters in adult Kazakhs.

METHODS 4094 Kazakhs were recruited from the Cardiovascular Risk Survey which was carried out from 2007 to 2010. Anthropometric data, blood pressure, serum total cholesterol, triglyceride, low density lipoprotein cholesterol, high density lipoprotein cholesterol and fasting plasma glucose were documented. MetS and its components were confirmed according to IDF criteria. Areas under the curve (AUCs) of each variable for the presence of MetS were compared. The sensitivity (Sen), specificity (Spe), shortest distance in the receiver's operating characteristic curve (ROC) and cutoffs of each variable to diagnose MetS were calculated.

RESULTS 28.6% of men and 31.0% of women had MetS in the Kazakh population. In men, WHtR had the highest AUC value 0.821, followed by BMI (0.801), TG/HDL-C (0.792), WHR (0.776) and BAI (0.666). In women, WHtR also had the highest AUC value (0.835), following by BMI (0.789), WHR (0.778), TG/HDL-C (0.778) and BAI (0.751). Similarly, among all 5 anthropometric and atherogenic parameters, WHtR had the shortest ROC distance of 0.37 (Sen=81.09%, Spe=68.50%); the optimal cutoff for WHtR was 0.55 in men. In women, WHtR also had the shortest ROC distance of 0.35 (Sen=84.59%, Spe=68.97%); the optimal cutoff of WHtR was 0.54.

CONCLUSIONS WHtR was the best predictor of MetS in both Kazakh men and women.

GW26-e2328

The Reaction Mechanism of Isoproterenol and DNA of Cardiomyocytes Was Studied by Electrochemical Method on a PANI and MWNT Modified GCE

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OBJECTIVES New mechanisms of action between isoproterenol (Iso) and DNA of cardiomyocytes were expounded from the perspective of electrochemistry. The research findings provide supplements for reaction mechanism of iso, and contribute to a potential target for suppressing side effects of Iso.

METHODS Cardiomyocytes were isolated from the heart ventricles of 24h Sprague-Dawley neonatal rats through enzymatic digestion. Cardiomyocytes isolated were identified by morphological observation and immunofluorescence. DNA of cardiomyocytes and nuclear protein were extracted by relevant kits. The protein levels of γ-H2AX, p-ATM and p-ATR were analyzed by Western blotting. Glassy carbon electrode (GCE) was modified by nanocomposites of MWNTs and PANI layer by layer self-assembly. Apparent characteristics were analyzed by scanning electron microscope, X-ray diffraction and Raman spectrum. Electrochemical measurements were performed with an electrochemistry workstation in a conventional three-electrode cell. The electrochemical behavior of Iso on the biosensor was measued by cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS) and differential pulse voltammetry (DPV).

RESULTS Cells isolated were high-purity cardiomyocytes. PNAI and MWNT prepared had excellently biocompatible and electric catalytic properties with large specific surface areas. CV tests showed the redox peak of GCE modified by MWNT/PANI current was remarkably increased in potassium ferricyanide solution, about 3-fold relative to the bare electrode. DPV tests suggested DNA/ PANI/MWNTs/GCE had excellent electro-catalysis properties. The characteristic peak of isoproterenol was determined to be about 0.25v on DNA/ PANI/MWNTs/GCE. DPV tests showed DNA damage was caused by 0.1-1mM Iso, because the oxidation peak potential of the internal guanine was up-regulated. DNA damage had dose-dependent effect with concentration of Iso, and the trend was confirmed by protein detection. For ionic strength did not change DPV curves, the binding mode between Iso and DNA was intercalation rather than electrostatic interaction. The slope value of the fitting equation between electrode peak potential and pH values was 63mV/pH. According to Nernst equation, the redox reaction between Iso and DNA was involved with equal protons and electrons transfer process. The electrochemcal oxidation process was depended on adsorption step and it was an irreversible process. According to the theory of electrochemical reaction, we calculated that the electro-chemical oxidation of Iso was a transfer process of a single electron and a single proton.

CONCLUSIONS The modification of PANI/MWNTs significantly improved electro-catalysis performance of GCE. DNA damage had dose-dependent effect with concentrations of Iso. The interaction mode between DNA of cardiomyocytes and Iso was intercalation. The electro-chemical oxidation of Iso on tDNA/PANI/MWNTs/GCE electrode was an adsorption-controlled irreversible and a single-electron single-proton transfer process.

GW26-e3546

Ultrasound-targeted microbubble destruction (UTMD) assisted delivery of shRNA against PHD2 into H9C2 cells

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OBJECTIVES Gene therapy has great potential for human diseases. Development of efficient delivery systems is critical to its clinical translation. Recent studies have shown that microbubbles in combination with ultrasound (US) can be used to facilitate gene delivery. An aim of this study is to investigate whether the combination of US-targeted microbubble destruction (UTMD) and polyethylenimine(PEI) (UTMD/PEI) can mediate even greater gene transfection efficiency than UTMD alone and to optimize ultrasonic irradiation parameters. Another aim of this study is to investigate the biological effects of PHD2-shRNA after its transfection into H9C2 cells.

METHODS pEGFP-N1oreukaryotic shPHD2-EGFP plasmid was mixed with albumin-coated microbubbles and PEI to form complexes for transfection. After these were added into H9C2 cells, the cells were exposed to US with various sets of parameters. The cells were then harvested and analyzed for gene expression.

RESULTS UTMD/PEI was shown to be highly efficient in gene transfection. AnUS intensity of 1.5W/cm^2, a microbubble concentration of 300μl/ml, an exposure time of 45s, and a plasmid concentration of 15μg/ml were found to be optimal for transfection. UTMD/PEI-mediated PHD2-shRNA transfectionin H9C2 cells significantly down regulated the expression of PHD2 and increased expression of HIF-1α and downstream angiogenesis factors VEGF, TGF-β and bFGF.

CONCLUSIONS UTMD/PEI, combined with albumin-coated microbubbles, warrants further investigation for therapeutic gene delivery.

GW26-e3869

Effects of ifi204 Gene Expression on Apoptosis and Migration of Vascular Adventitial Fibroblast In Rat.

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OBJECTIVES To investigate effects of *Ifi204* gene over-expression and silencing on apoptosis and migration of vascular adventitial fibroblast cell (VAF) in rat.

METHODS Rat VAF were cultured and transfected *Ifi204* gene by lentivirus particles (ifi204lv group) or empty vector lentivirus